

REMARKS

A Request for Continued Examination is being filed concurrently herewith.

Claims 1-20 are all the claims presently pending in the application.

To expedite prosecution, independent claim 1 has been amended in accordance with the Examiner's kind suggestions in the personal interview conducted on June 7, 2006. Applicant notes that a Statement of Substance of Interview was filed on July 7, 2006.

Claims 2-7 also are amended to correspond to the amendments to claim 1.

Such amendments to claims 1-7 are believed to define more clearly the features of the present invention. No new matter is added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

With respect to the prior art rejections, claims 1, 8, and 15 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Weitbruch, et al. (U.S. Patent Publication No. 2004/0165064).

Claims 2, 3, 5, 6, 9, 10, 12, 13, and 16-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon, et al. (U.S. Patent Publication No. 2002/0191846).

Claims 4, 11, and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Hamilton (U.S. Patent Publication No. 2001/0035874).

Claims 7 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon and in further view of Hamilton.

These rejections are respectfully traversed in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention is directed to an improved method and device for preventing burn-in of a display screen of an image display device.

For example, independent claim 1 exemplarily defines a device for preventing burn-in of a display screen of an image display device, the device including a blurring device for applying a blurring process to a single screen of an input image signal to obtain a single screen of a blurred image signal, and a contrast inversion device for inverting contrast of a luminance level of the single screen of the blurred image signal to generate a single screen of a burn-in prevention image signal.

Independent claim 8 exemplarily defines a method of preventing burn-in of a display screen of an image display device, the method including A) subjecting an input image signal to blurring to obtain a blurred image signal, and B) subjecting the blurred image signal to contrast inversion to invert contrast of a luminance level of the blurred image signal to generate a burn-in prevention image signal.

Independent claim 15 exemplarily defines a display apparatus including a display device including a display screen, a contour modification circuit for blurring an input image to obtain a blurred image when the input image includes a still image, a contrast inversion circuit for inverting contrast of a luminance level of the blurred image to obtain a contrast inverted image, and a driver for displaying the contrast inverted image on the display screen when the input image includes a still image.

II. THE PRIOR ART REJECTIONS

As the Examiner kindly acknowledged in the personal interview conducted on June 7, 2006, and in the present Office Action (at page 2-3, bridging paragraph), Weitbruch discloses blurring the image by summing two or more images. On the other hand, as the Examiner also kindly acknowledged that Crinon discloses blurring by quantizing two images.

To expedite prosecution, independent claim 1 has been amended to define more clearly and particularly the features of the present invention, in which a blurring device applies a blurring process to a single screen of an input image signal to obtain a single screen of a blurred image signal, and a contrast inversion device inverts the contrast of a luminance level of the single screen of the blurred image signal to generate a single screen of a burn-in prevention image signal.

Claims 2-7 also have been amended to correspond to the amendment to independent claim 1.

Therefore, for the reasons set forth below, Applicant respectfully submits that each of the prior art rejections are overcome, and accordingly, requests that the Examiner withdraw these rejections.

A. Claims 1, 8, and 15 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Weitbruch.

The Examiner alleges that Weitbruch discloses all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed

invention which are not disclosed or suggested by Weitbruch. Therefore, Applicant traverses this rejection.

Independent claim 1

Independent claim 1 recites a device for preventing burn-in of a display screen of an image display device, the device including:

*a blurring device for applying a blurring process to a single screen of an input image signal to obtain a single screen of a blurred image signal; and
a contrast inversion device for inverting contrast of a luminance level of the single screen of the blurred image signal to generate a single screen of a burn-in prevention image signal (emphasis added).*

According to the claimed invention, the contrast inversion device inverts the contrast of a single screen of a blurred image signal. In other words, a single screen of an image signal is blurred prior to the contrast inversion.

In comparison, as the Examiner kindly acknowledged in the present Office Action, Weitbruch discloses combining two images to allegedly blur an image, by obscuring the two images that are combined.

For example, Weitbruch discloses that:

[0023] According to one aspect of the invention, a specific dynamic solution enabling to reduce the visibility of short-term burning effect in real time will be possible. Here, a correction picture is calculated on the basis of at least one preceding picture being made responsible for a short-term burning effect and the correction picture will be combined with a current picture, the combined picture will be displayed for reducing ghost images resulting from the at least one preceding picture.

Weitbruch also discloses that a burn-in pattern can be computed by averaging the displayed pictures (e.g., see Weitbruch at paragraph [0077]).

Weitbruch also discloses that:

[0078] According to the first possibility for professional applications based on known static picture(s) a new function can be added in the PDP giving the possibility to memorize one picture when only one picture is responsible of the "long term burn-in". If more pictures are responsible, this function will sum up a certain number of pictures in order to dispose of the burning picture. When summing up the video levels for corresponding pixels, the maximum possible video level will not be exceeded. E.g. if the video levels 255 and 250 are summed up, the resulting value is not 505 but remains 255 in case of 8 bit video level numbers. The procedure of summing up different video picture to get the burning picture is illustrated in FIG. 7.

That is, Weitbruch discloses that, when only one picture is responsible for burn-in, the one picture is memorized. On the other hand, if more than one picture is responsible for burn-in, then Weitbruch sums up these pictures. Hence, Figure 7 relates to a procedure of summing up different video picture to get a burning picture.

Weitbruch further states that:

[0079] Based on this resulting burning picture, an inverted picture can be computed as shown in FIG. 8 or in case of a single original picture it can be immediately inverted. ...

Thus, according to Weitbruch, if only a single picture is responsible for the burn-in, then the single picture is immediately inverted. Therefore, no blurring takes place in this case.

Moreover, when more than one picture is responsible for burn-in, Weitbruch merely combines these pictures.

Thus, as the Examiner kindly acknowledged in the present Office Action, Weitbruch discloses combining two images to produce the alleged blurring effect. That is, in Weitbruch, no processing (i.e., blurring) is performed on any of the individual pictures. Instead, the pictures are combined.

Applicant respectfully submits that, by merely combining or averaging the pictures, Weitbruch does not disclose or suggest at least “*a blurring device for applying a blurring process to a single screen of an input image signal to obtain a single screen of a blurred image signal; and a contrast inversion device for inverting contrast of a luminance level of the single screen of the blurred image signal to generate a single screen of a burn-in prevention image signal*”, as defined by independent claim 1 (emphasis added).

Thus, Applicant submits that Weitbruch clearly does not disclose or suggest all of the features of the claimed invention.

Applicant submits that independent claims 8 and 15 are patentable over Weitbruch for somewhat similar reasons as those set forth above, as well as for the reasons set forth in the Amendment under 37 C.F.R. § 1.111 filed on March 24, 2006, which is incorporated herein by reference in its entirety.

For the foregoing reasons, Weitbruch does not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 1, 8, and 15 to pass to immediate allowance.

B. Claims 2, 3, 5, 6, 9, 10, 12, 13, and 16-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon.

The Examiner alleges that the combination of Weitbruch and Crinon disclose or suggest all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed invention which are not disclosed or suggested by Weitbruch and Crinon, either individually or in combination. Therefore, Applicant traverses this rejection.

The Examiner alleges that Crinon makes up for the deficiencies of Weitbruch. Particularly, the Examiner relies on Crinon for disclosing a quantizer (see Crinon at paragraph 0038).

However, as the Examiner points out, Crinon merely discloses a quantizer that is used to handle the macroblocks input, which works to combine the foreground and background images. As the Examiner kindly acknowledges, Crinon has nothing to do with preventing burn-in. Instead, Crinon is directed to mosaic generation with an automatic segmentation system for distinguishing foreground and background objects (e.g., see Crinon at Abstract).

Applicant respectfully reiterates that the ordinarily skilled artisan would not have been motivated to combine the quantizer of Crinon with Weitbruch.

Moreover, even assuming *arguendo* that it would have been obvious to combine these references, Applicant submits that the resulting combination still would not result in the features of the claimed invention, since the quantizer of Crinon does not blur a single image, according to the claimed invention.

For example, as the Examiner kindly noted in the personal interview conducted on June 7, 2006, and as kindly acknowledged in the present Office Action at pages 2-3, bridging paragraph, Weitbruch discloses blurring the image by summing two or more images. On the other hand, as the Examiner also kindly noted, Crinon discloses blurring by quantizing two images.

In comparison, the present invention discloses subjecting a input image signal to blurring including quantizing. That is, the claimed invention performs blurring of a single screen of an input image signal (i.e., a single image).

For the foregoing reasons, Weitbruch and Crinon, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 2, 3, 5, 6, 9, 10, 12, 13, and 16-19 to pass to immediate allowance.

C. Claims 4, 11, and 20 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Hamilton (U.S. Patent Publication No. 2001/0035874).

The Examiner alleges that the combination of Weitbruch and Hamilton disclose or suggest all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed invention which are not disclosed or suggested by Weitbruch and Hamilton, either individually or in combination. Therefore, Applicant traverses this rejection.

Applicant submits that claims 4, 11, and 20 would be patentable over the cited references for at least somewhat similar features as those set forth above with respect to independent claims 1, 8, and 15, as well as for the additional features recited therein.

Applicant notes that Hamilton does not make up for the deficiencies of independent claims 1, 8, and 15, as set forth above, and indeed, is not even relied upon for the features of independent claims 1, 8, and 15.

For the foregoing reasons, Weitbruch and Hamilton, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 4, 11, and 20 to pass to immediate allowance.

D. Claims 7 and 14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Weitbruch in view of Crinon and in further view of Hamilton.

The Examiner alleges that the combination of Weitbruch, Crinon, and Hamilton disclose or suggest all of the features of the claimed invention. Applicant respectfully submits, however, that there are features of the claimed invention which are not disclosed or suggested by Weitbruch, Crinon, and Hamilton, either individually or in combination. Therefore, Applicant traverses this rejection.

Applicant submits that claims 7 and 14 would be patentable over the cited references for at least somewhat similar features as those set forth above with respect to independent claims 1, 8, and 15, as well as for the additional features recited therein.

Applicant notes that Crinon and Hamilton do not make up for the deficiencies of independent claims 1, 8, and 15, as set forth above, and indeed, are not even relied upon for the features of independent claims 1, 8, and 15.

For the foregoing reasons, Weitbruch, Crinon, and Hamilton, either individually or in combination, do not disclose or suggest all of the features of the claimed invention. Therefore, the Examiner is requested to reconsider and withdraw this rejection and to permit claims 7 and 14 to pass to immediate allowance.

III. CONCLUSION

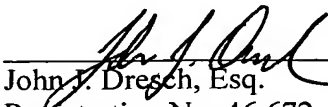
In view of the foregoing, Applicant submits that claims 1-20, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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